

Claims:

1. Method of coloring porous material, which comprises contacting the material being colored, with
 a) a capped diazonium compound of formula



wherein

A^+ is a cationic radical of an organic compound,
 B is a radical of an unsubstituted or substituted, aliphatic or aromatic amine,
 An is an anion,
 and
 b) optionally a coupling component.

2. Method according to claim 1, which comprises contacting the material being colored, with
 a) a capped diazonium compound of formula (1)

wherein

A^+ is a cationic radical of unsubstituted phenyl; naphthyl; thiophenyl; 1,3-thiazolyl; 1,2-thiazolyl; 1,3-benzothiazolyl; 2,3-benzothiazolyl; imidazolyl; 1,3,4-thiadiazolyl; 1,3,5-thiadiazolyl; 1,3,4-triazolyl; pyrazolyl; benzimidazolyl; benzopyrazolyl; pyridinyl; quinolinyl; pyrimidinyl; isoxazolyl; aminodiphenyl; aminodiphenylether and azobenzaryl or
 A^+ is cationic radical of a phenyl, naphthyl, thiophenyl, 1,3-thiazolyl, 1,2-thiazolyl, 1,3-benzothiazolyl, 2,3-benzothiazolyl, imidazolyl, 1,3,4-thiadiazolyl, 1,3,5-thiadiazolyl, 1,3,4-triazolyl, pyrazolyl, benzimidazolyl, benzopyrazolyl, pyridinyl, quinolinyl, pyrimidinyl and isoxazolyl, aminodiphenyl, aminodiphenylether and azobenzaryl, each of which is mono- or poly-substituted by $\text{C}_1\text{-}\text{C}_4$ alkyl, $\text{C}_1\text{-}\text{C}_4$ alkoxy, $\text{C}_1\text{-}\text{C}_4$ alkylthio, quaternised ammonium radicals, halogen, e.g. fluorine, bromine or chlorine, nitro, trifluoromethyl, CN, SCN, $\text{C}_1\text{-}\text{C}_4$ alkylsulfonyl, phenylsulfonyl, benzylsulfonyl, di- $\text{C}_1\text{-}\text{C}_4$ alkylaminosulfonyl, $\text{C}_1\text{-}\text{C}_4$ alkyl-carbonylamino, $\text{C}_1\text{-}\text{C}_4$ alkoxysulfonyl or by di-(hydroxy- $\text{C}_1\text{-}\text{C}_4$ alkyl)-aminosulfonyl, or

A^+ is a cationic radical of an organic dye, and

B is a radical of formula $-\text{NR}_{65}\text{R}_{66}$, wherein R_{65} is hydrogen; or unsubstituted linear or branched $\text{C}_1\text{-}\text{C}_6$ alkyl or linear or branched $\text{C}_1\text{-}\text{C}_6$ alkyl, which is substituted by one or more identical or different substituent selected from the group consisting of $\text{OC}_1\text{-}\text{C}_4$ alkyl, COOH, COO^- , $\text{COOC}_1\text{-}\text{C}_2$ alkyl, SO_3H , SO_3^- , NH_2 , CN, halogen and OH, O^- ; and R_{66} is unsubstituted linear or branched $\text{C}_1\text{-}\text{C}_6$ alkyl or linear or branched $\text{C}_1\text{-}\text{C}_6$ alkyl, which is substituted by one or

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more identical or different substituent selected from the group consisting of OC₁-C₄alkyl, COOH, COO⁻, COOC₁-C₂alkyl, SO₃H, SO₃⁻, NH₂, CN, halogen and OH, O⁻; or
B is a radical of unsubstituted aniline; or a radical of unsubstituted aminonaphthalene; the radical of aniline or aminonaphthalene, wherein the phenyl or the naphthyl ring is substituted by one or more identical or different substituent selected from the group consisting of COOH, COO⁻, SO₃H, SO₃⁻, CN, halogen, SO₂C₁-C₂alkyl, unsubstituted linear or branched C₁-C₄alkyl, linear or branched C₁-C₄alkyl, substituted by OH, O⁻, COOH, COO⁻, COC₁-C₂alkyl or SO₂-N(C₁-C₄alkyl)-(CH₂)₁₋₄SO₃H and wherein the amino radical is substituted by hydrogen, unsubstituted linear or branched C₁-C₄alkyl or linear or branched C₁-C₄alkyl, substituted by OH, O⁻, or COOH, COO⁻;
An is an anion,
and
b) a coupling component.

3. Method according to any of the precedings claims, wherein A⁺ is a cationic radical of unsubstituted phenyl; naphthyl; thiophenyl; 1,3-thiazolyl; 1,2-thiazolyl; 1,3-benzothiazolyl; 2,3-benzothiazolyl; imidazolyl; 1,3,4-thiadiazolyl; 1,3,5-thiadiazolyl; 1,3,4-triazolyl; pyrazolyl; benzimidazolyl; benzopyrazolyl; pyridinyl; quinolinyl; pyrimidinyl; isoxazolyl; aminodiphenyl; aminodiphenylether and azobenzetyl or
A⁺ is cationic radical of a phenyl, naphthyl, thiophenyl, 1,3-thiazolyl, 1,2-thiazolyl, 1,3-benzothiazolyl, 2,3-benzothiazolyl, imidazolyl, 1,3,4-thiadiazolyl, 1,3,5-thiadiazolyl, 1,3,4-triazolyl, pyrazolyl, benzimidazolyl, benzopyrazolyl, pyridinyl, quinolinyl, pyrimidinyl and isoxazolyl, aminodiphenyl, aminodiphenylether and azobenzetyl, each of which is mono- or poly-substituted by C₁-C₄alkyl, C₁-C₄alkoxy, C₁-C₄alkylthio, halogen, e.g. fluorine, bromine or chlorine, nitro, trifluoromethyl, CN, SCN, C₁-C₄alkylsulfonyl, phenylsulfonyl, benzylsulfonyl, di-C₁-C₄alkylaminosulfonyl, C₁-C₄alkyl-carbonylamino, C₁-C₄alkoxysulfonyl or by di-(hydroxy-C₁-C₄alkyl)-aminosulfonyl, or
A⁺ is a cationic radical residue of an organic dye selected from anthraquinon dye, acridine dye, azo dye, azomethin dye, hydrazomethin, benzodifuranone dye, coumarin dye, diketopyrrolopyrrol dye, dioxazine dye, diphenylmethane dye, formazan dye, indigoid dye, indophenol, naphtalimide dye, naphthoquinone dye, nitroaryl dye, merocyanine dye, methin dye, oxazine dye, perinone dye, perylene dye, pyrenequinone dye, phthalocyanine dye, phenazine dye, quinonimine dye, quinacridone dye, quinophtalone dye, styryl dye, triphenylmethan dye, xanthene dye, thiazine dye and thioxanthene dye, and

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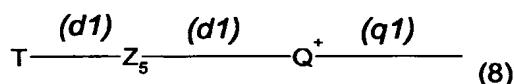
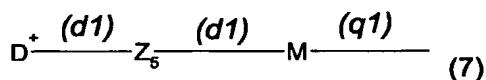
B is a radical of formula $-NR_{65}R_{66}$, wherein R₆₅ is hydrogen; or unsubstituted linear or branched C₁-C₆alkyl or linear or branched C₁-C₆alkyl, which is substituted by one or more identical or different substituent selected from the group consisting of OC₁-C₄alkyl, COOH, COO⁻, COOC₁-C₂alkyl, SO₃H, SO₃⁻, NH₂, CN, halogen and OH, O⁻ and R₆₆ is unsubstituted linear or branched C₁-C₆alkyl or linear or branched C₁-C₆alkyl, which is substituted by one or more identical or different substituent selected from the group consisting of OC₁-C₄alkyl, COOH, COO⁻, COOC₁-C₂alkyl, SO₃H, SO₃⁻, NH₂, CN, halogen, OH and O⁻.

4. Method according to any of the precedings claims, wherein A⁺ is a cationic radical of an organic dye selected from azo dye, azomethin dye, hydrazomethin dye, merocyanine dye, methin dye and styryl dye.

5. A method according to any of the precedings claims, wherein there is used as a coupling component an unsubstituted or substituted acylacetaryl amide, phenol, naphthol, pyridine, quinolone, pyrazole, indole, diphenylamine, aniline, aminopyridine, pyrimidone, naphthylamine, aminothiazole, thiophene or hydroxypyridine.

6. A method according to any of the precedings claims, wherein a coupling component is used, which is mono- or poly-substituted by amino, alkylamino, dialkylamino, halogen, alkyl, alkoxy, phenyl, naphthyl or aryloxy.

7. Method according to any of the precedings claims, wherein A⁺ is a cationic radical of a dye of formulae (7) and (8)



wherein

Z₅ is a biradical selected from:

-N=N-, -CR₆=N-, -N=CR₇-, -NR₈-N=CR₉-, -R₁₀C=N-NR₁₁-, -CR₆=CR₆-,

wherein

R₆, R₇, R₈, R₉, R₁₀ and R₁₁ are each independently of the other hydrogen, or unsubstituted or substituted C₁-C₁₄alkyl, allyl, -C₅-C₁₀aryl, -C₁-C₁₀alkylen(C₅-C₁₀aryl),

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-C₅-C₁₀arylen-(C₁-C₁₀alkyl), and

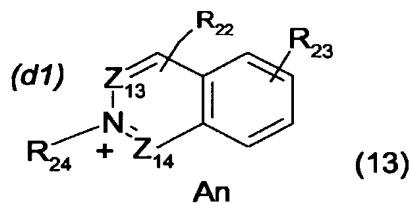
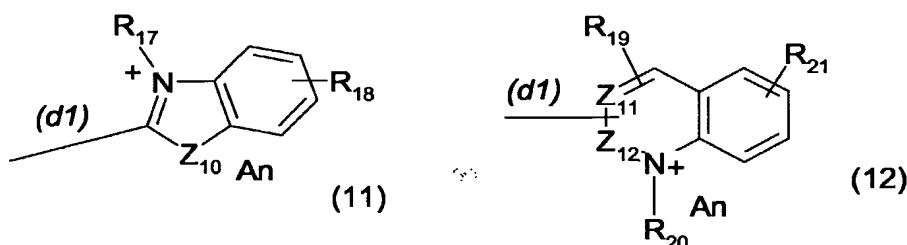
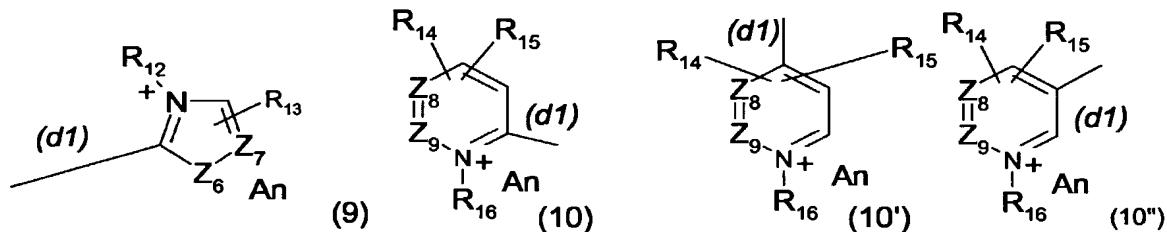
D⁺ is a radical of a cationic, aromatic, substituted or unsubstituted heterocyclic compound,

M is a biradical of an aromatic substituted or unsubstituted compound,

T is a radical of an aromatic substituted or unsubstituted compound, and

Q⁺ is a biradical of an aromatic, substituted or unsubstituted heterocyclic compound.

8. Method according to claim 7, wherein D⁺ is a radical of a cationic aromatic substituted or unsubstituted heterocyclic compound of formulae (9), (10), (10'), (10''), (11), (12) or (13)



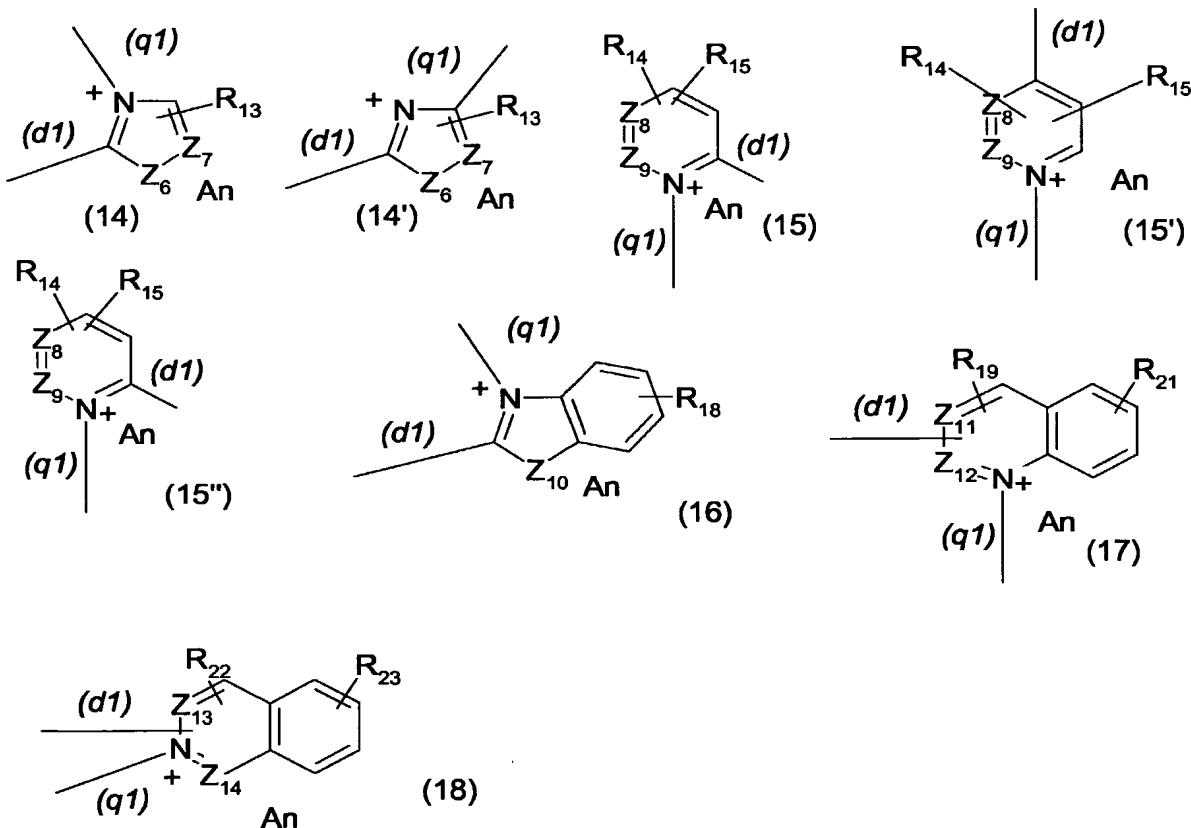
wherein

(d1) is a bond of formula (7) as defined in claim 7;

and

Q⁺ is a biradical of a cationic aromatic substituted or unsubstituted heterocyclic compound of formulae (14), (14'), (15), (15'), (15''), (16), (17) or (18)

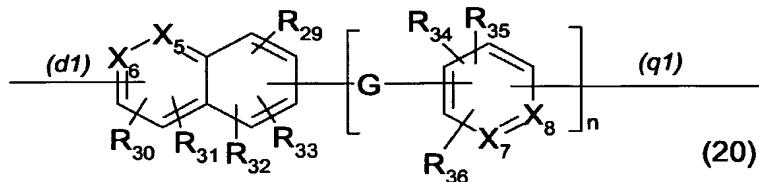
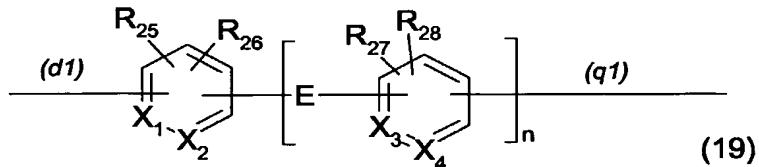
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wherein

(d1) and (q1) are a bond to Z₅ of formula (8) as defined in claim 7,
and

M is a biradical of formulae (19) or (20),

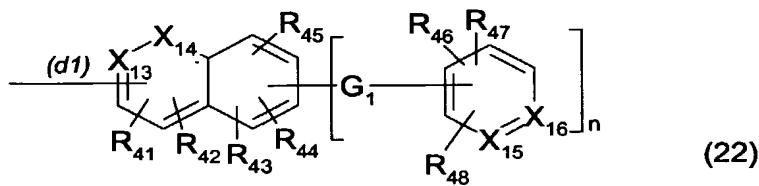
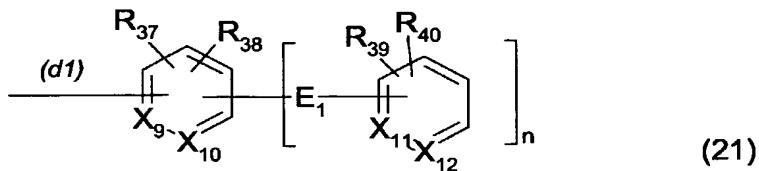


wherein

(d1) and (q1) are a bond of formula (7) as defined in claim 7, and

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T is a radical of compounds of formulae (21) or (22),



wherein

(d1) is a bond of formula (8) as defined in claim 7, and

wherein

$X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, X_{12}, X_{13}, X_{14}, X_{15}$ and X_{16} are independently from each other N or a radical of CR_{49} ,

Z_6 is O or S or a radical of NR_{50} ,

$Z_7, Z_8, Z_9, Z_{10}, Z_{11}, Z_{12}, Z_{13}$ and Z_{14} are independently from each other N or a radical of CR_{51} ;

E, E_1 , G and G_1 are independently from each other $-O-$, $-S-$, $-(SO_2)-$, $-C_1-C_{10}\text{alkylen}$ or $-(NR_{52})-$;

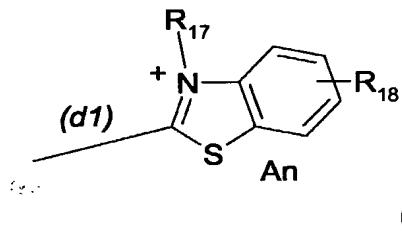
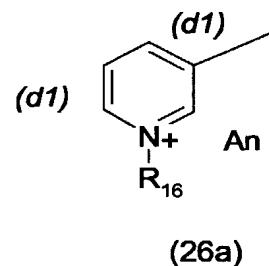
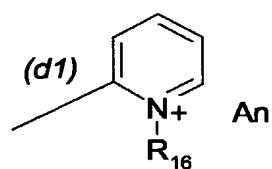
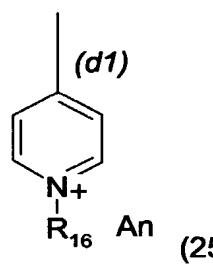
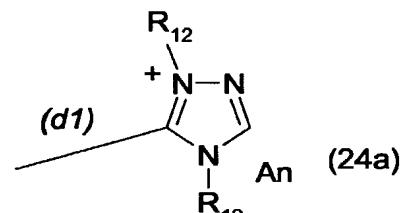
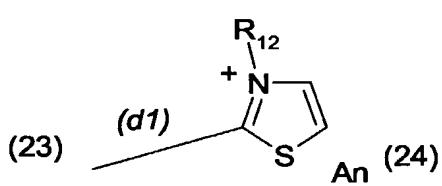
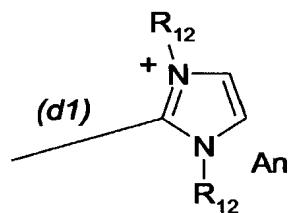
$R_{13}, R_{14}, R_{15}, R_{18}, R_{19}, R_{21}, R_{22}, R_{23}, R_{25}, R_{26}, R_{27}, R_{28}, R_{29}, R_{30}, R_{31}, R_{32}, R_{33}, R_{34}, R_{35}, R_{36}, R_{37}, R_{38}, R_{39}, R_{40}, R_{41}, R_{42}, R_{43}, R_{44}, R_{45}, R_{46}, R_{47}, R_{48}, R_{49}$ and R_{51} are independently from each other hydrogen, halogen, $C_1-C_{14}\text{alkyl}$, which is saturated or unsaturated, linear or branched, substituted or unsubstituted, or interrupted or uninterrupted with heteroatoms; a radical of phenyl, which substituted or unsubstituted; a radical of carboxylic acid; a radical of hydroxy, nitril, $C_1-C_{16}\text{alkoxy}$, (poly)-hydroxy- $C_2-C_4\text{-alkoxy}$, carboxylic acid, sulfonic acid; halogen, sulfonylamino, SR_{60} , NHR_{53} or $NR_{54}R_{55}$, OR_{61} , SO_2 , $COOR_{62}$, $NR_{56}COR_{58}$, $CONR_{57}$; and

$R_{12}, R_{16}, R_{17}, R_{20}, R_{24}, R_{50}, R_{52}, R_{53}, R_{54}, R_{55}, R_{56}, R_{57}, R_{58}, R_{60}, R_{61}$ and R_{62} are each independently of the other hydrogen, unsubstituted or substituted $C_1-C_{14}\text{alkyl}$, allyl, $-C_5-C_{10}\text{arylen-}(C_1-C_{10}\text{alkyl})$, $-C_1-C_{10}\text{alkylen}(C_5-C_{10}\text{aryl})$, $C_5-C_{10}\text{aryl}$, and

An is an anion.

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9. Method according to any of precedings claims, wherein D^+ is a radical of a cationic aromatic substituted or unsubstituted heterocyclic compound of formulae (23), (24), (24a), (25), (26), (26a) or (27)



wherein

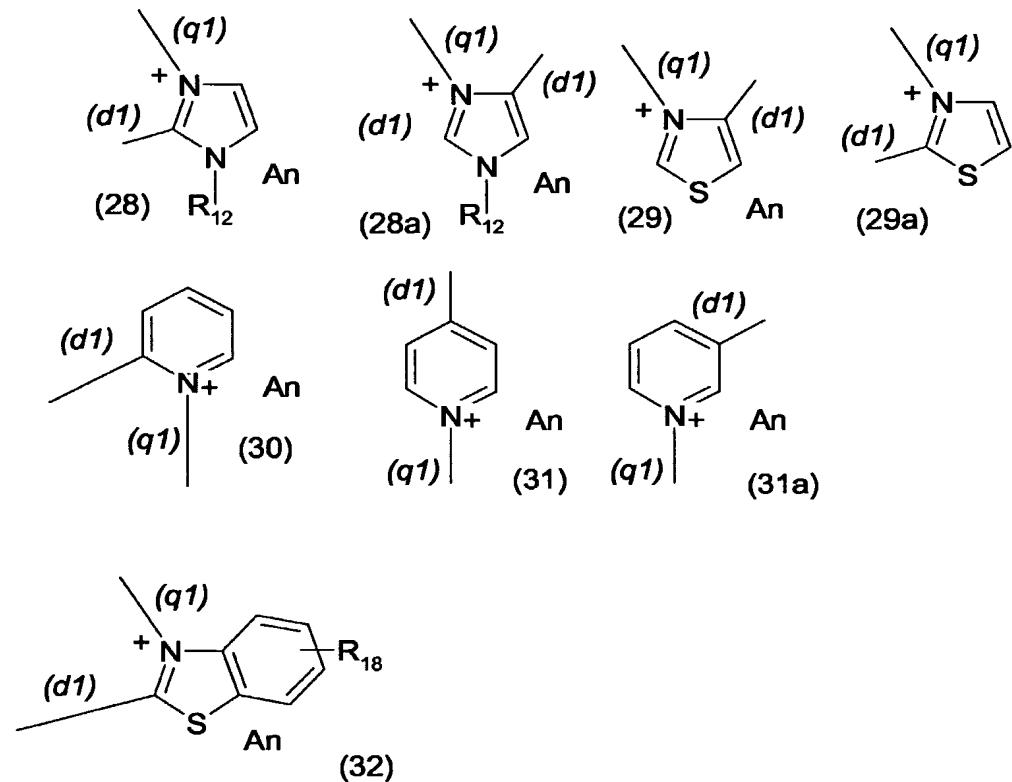
(d1) and (q1) are a bond of formula (7) as defined in claim 7, and

An, R₁₂, R₁₆, R₁₇ and R₁₈ have the same meaning as given in claim 8,

and

Q^+ is a biradical of a cationic aromatic substituted or unsubstituted heterocyclic compound of formulae (28), (28a), (29), (29a), (30), (31), (31a) or (32)

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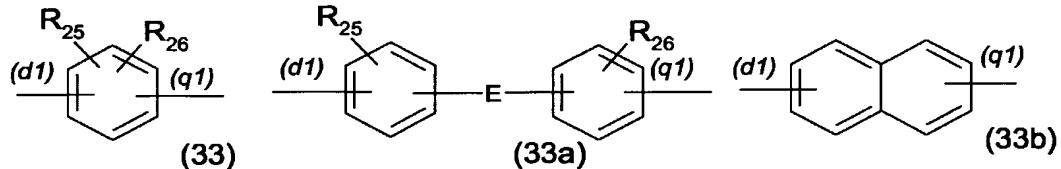
wherein

(d1) and (q1) are bond of formula (8) as defined in claim 7, and

An, R₁₂ and R₁₈ have the same meaning as given in claim 8,

and

M is a biradical of formulae (33), (33a) or (33b),



wherein

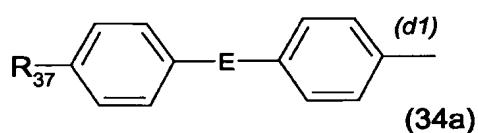
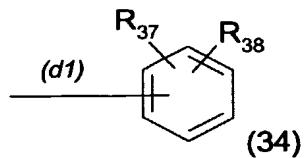
(d1) and (q1) are bond of formula (7) as defined in claim 7, and

E, R₂₅ and R₂₆ have the same meaning as given in claim 8;

and

T is a radical of formulae (34) or (34a),

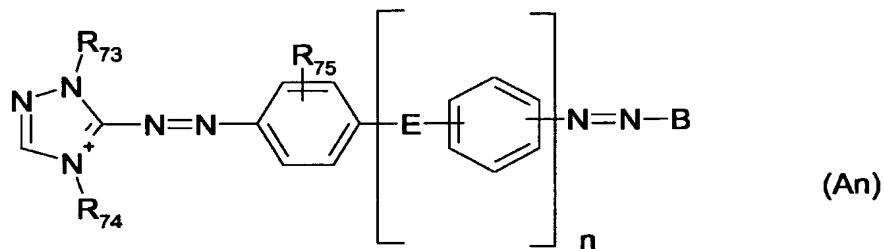
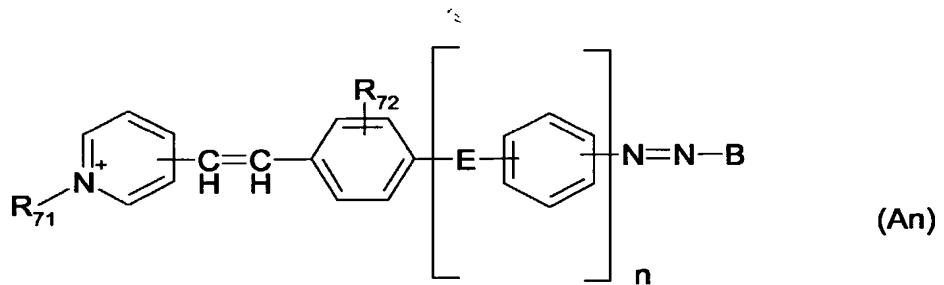
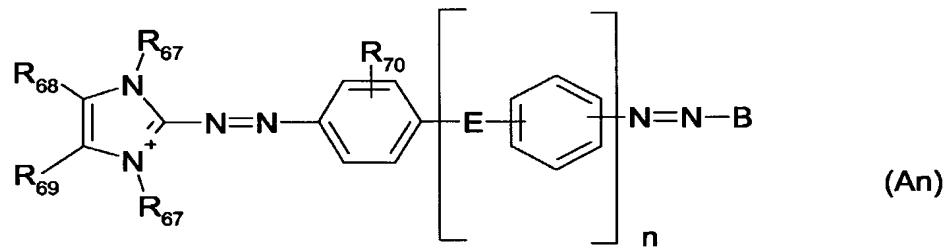
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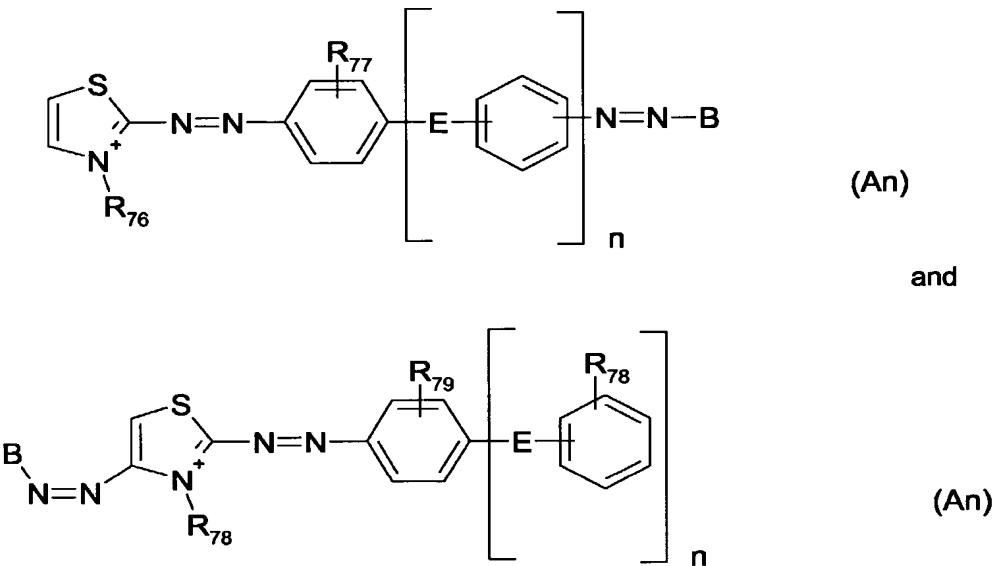
wherein

R_{37} , R_{38} and E has the same definition as given in claim 8, and
(d1) is a bond of compound of formula (8) as defined in claim 7.

10. Method according to any of the precedings claims, which comprises contacting the material being colored, with
a) at least a single capped diazonium compound selected from the group of compounds of the following formulae



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wherein

E is $-\text{O}-$, $-\text{S}-$, $-(\text{SO}_2)-$, CR_{80} or a radical of $-(\text{NR}_{81})-$;

R_{70} , R_{72} , R_{75} , R_{77} , R_{78} , R_{79} , R_{80} and R_{81} are independently from each other hydrogen, $\text{C}_1\text{-C}_{16}$ alkyl, which is saturated or unsaturated, linear or branched, substituted or unsubstituted, or interrupted or uninterrupted with heteroatoms, such as, by hydroxy, nitro, amino, $\text{C}_1\text{-C}_2$ alkoxy, (poly)-hydroxy- $\text{C}_2\text{-C}_4$ alkoxy, di- $\text{C}_1\text{-C}_2$ alkylamino, carboxylic acid, sulfonic acid; a radical of phenyl, which substituted or unsubstituted; a radical of carboxylic acid; a radical of sulfonylamino, S, NH or $\text{N}(\text{C}_1\text{-C}_4\text{alkyl})$, O, halogen, SO_2 , COO , OCO , NHCO , $\text{CON}(\text{C}_1\text{-C}_4\text{alkyl})$ or $\text{N}(\text{C}_1\text{-C}_4\text{alkyl})\text{CO}$; or are independently from each other an aliphatic or aromatic, substituted;

R_{68} with R_{69} have the same meaning as R_{70} , R_{72} , R_{75} , R_{77} , R_{78} , R_{79} , R_{80} and R_{81} as given above, or

R_{68} with R_{69} can build up an aromatic carbon cycle;

R_{67} , R_{71} , R_{73} , R_{74} , R_{76} and R_{78} are unsubstituted or substituted $\text{C}_1\text{-C}_{14}$ alkyl, allyl, $-\text{C}_5\text{-C}_{10}$ arylen-($\text{C}_1\text{-C}_{10}$ alkyl), $-\text{C}_1\text{-C}_{10}$ alkylen($\text{C}_5\text{-C}_{10}$ aryl), $\text{C}_5\text{-C}_{10}$ aryl;

B, An and n have the same meaning as given in claim 2;

and

b) a coupling component.

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11. Compounds of formula (1)

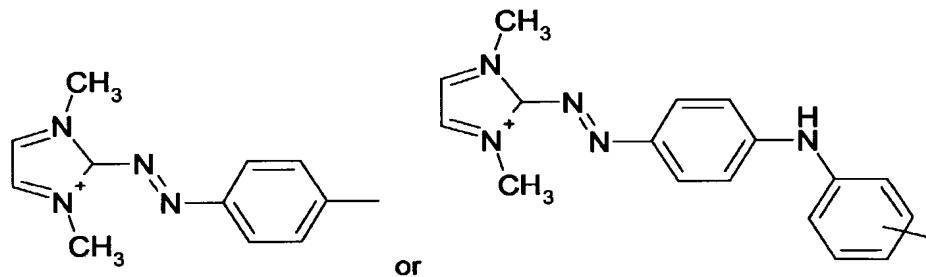


wherein

A^+ is a cationic radical of an organic compound,

B is a radical of an unsubstituted or substituted, aliphatic or aromatic amine,

An is an anion, with the proviso that A^+ is not a radical of formula



12. A composition comprising at least a single capped diazonium compound of formula (1) as defined above in claim 1 and a coupling component.

13. A composition according to claim 12 comprising in addition at least a single direct dye, and/or at least a single oxidative dye and/or an oxidative agent.

14. Composition according to any one of claims 12 or 13 in form of a shampoo, conditioner, gel or emulsion.

15. A method according to any one of claims 1 to 10 for dyeing or tinting human hair.